

### **REMARKS**

Claims 19-23, 25-35, and 44-56 are now pending in the application. Claims 19, 20, and 45 are amended herein. Support for the amendment to claim 19 can be found in original claim 24. Support for the amendment to claim 45 can be found at least in Paragraph [0021] of the present application. New claims 46-56 are added herein. Support for the new claims can be found at least in Paragraphs [0020]–[0021] and Figure 1 of the present application. No new matter is added. Claim 24 is cancelled herein. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **CLAIM OBJECTIONS**

Claim 20 stands objected to for certain informalities. Applicant has amended claim 20 according to the Examiner's suggestion. Therefore, reconsideration and withdrawal of this objection are respectfully requested.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 19-35, 44, and 45 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

Notwithstanding, claims 19 and 45 are amended herein. It is believed that with the amendment to these claims the instant rejection is now rendered moot. Accordingly, withdrawal of the instant rejection is requested.

#### **REJECTION UNDER 35 U.S.C. § 102**

Claims 19 and 45 stand rejected under 35 U.S.C. § 102(b) as being anticipated by da Rosa (U.S. Pat. No. 4,107,277) with evidence from LaConti et al. (U.S. Pat. No. 4,457,823). This rejection is respectfully traversed.

It is respectfully submitted that the instant rejection is not a proper § 102 rejection. In particular, it is noted that the Examiner is relying upon evidence from the LaConti et al. reference. In a § 102 rejection, all elements of the claim must be disclosed in a single reference. Relying upon both the da Rosa reference and the LaConti et al. reference is not a single reference. Thus, it is respectfully submitted that the instant rejection is improper and withdrawal of the instant rejection is requested. Notwithstanding, claims 19 and 45 are amended herein. It is believed that with the amendments to these claims, the instant rejection, whether proper or improper, is now rendered moot. Accordingly, for at least this additional reason withdrawal of the instant rejection is requested.

#### **REJECTION UNDER 35 U.S.C. § 103**

Claims 19-35, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harada et al. (U.S. Pat. No. 5,690,797) in view of Sioli (U.S. Pat. No. 4,758,322). This rejection is respectfully traversed.

Claim 19 is nonobvious and patentable over Harada et al. in view of Sioli because neither reference teaches, discloses, or provides motivation to one skilled in the art to have a pump located in the interior cavity of the pressure vessel and operable to selectively supply pressurized water in the interior cavity to each side of the

electrolyzer. Amended claim 19 calls for “a pump located in said interior cavity of said pressure vessel . . . said pump selectively supplies said pressurized water in said interior cavity to each side of said electrolyzer.” Thus, in claim 19, a pump within the interior cavity can take the pressurized water within the interior cavity and selectively supply the pressurized water to each side of the electrolyzer.

In contrast, the Harada et al. reference specifically teaches and discloses that pump 16 is disposed outside of container 7, as shown in Figure 2 of the Harada et al. reference. Outside of container 7 is not inside. Furthermore, Applicant can find no teaching, suggestion, or motivation to one skilled in the art in the Harada et al. reference to dispose pump 16 within the interior of container 7 as called for in claim 19. It is respectfully submitted that the Sioli reference also does not teach, suggest, or provide motivation to have a pump disposed in the interior cavity of the pressure vessel as called for in claim 19. Thus, it is respectfully submitted that there is no motivation, teaching, or suggestion to one skilled in the art in either the Harada et al. or Sioli reference, singularly or in combination, to place the pump in the interior cavity of the pressure vessel.

Furthermore, in rejecting claim 24 (which has been added to claim 19), the Examiner alleges that “one of ordinary skill in the art would have found it obvious to have relocated the pump (16) from an external position to the interior of the pressure vessel (7) for the purpose of reducing the footprint of the system to reduce the amount of space necessary for the system.” It is respectfully submitted, however, that there is no motivation within the prior art of record for relocating the pump as suggested.

Applicant can find no reference within the Harada et al. reference of the desirability or any motivation to move the pump from the exterior of the pressure vessel to the interior. Additionally, Applicant is unaware of how such relocation will reduce the footprint of the system as asserted by the Examiner. Rather, it is respectfully submitted that each component will occupy a given volume and that the volume required for the components will not change based on their position. There is no disclosure or suggestion that the pressure vessel of Harada et al. has adequate room, space, or is configured to contain a pump therein. Thus, Applicant is unsure of how the Examiner arrives at a conclusion that a footprint or required space will be reduced. Rather, the disposing of the pump therein may require a larger space as a pump suitable for being submersed within a high-pressure vessel may require different physical dimensions than that of a pump disposed outside of the pressure vessel and the dimensions of the pressure vessel may be required to be changed to accommodate the non-contemplated interiorly located pump.

Additionally, the relocation of such a pump is not a trivial concern. Rather, the relocation of the pump will require the selection or design of a pump suitable for being disposed and submersed within a high-pressure vessel. Additionally, servicing the pump is an issue that must also be addressed. With these specific concerns in mind, it is respectfully submitted that there is no motivation to one skilled in the art to relocate the pump into the interior of the pressure vessel. Moreover, with the prior art of record being completely silent and not providing any motivation for such an arrangement, it is respectfully submitted that the Examiner may be using impermissible hindsight reasoning based upon Applicant's own application. Thus, for at least these reasons, it

is respectfully submitted that claim 19 is nonobvious and patentable over the Harada et al. reference in view of the Sioli reference. Claims 20-23, 25-35, and 44 all depend from claim 19 and, therefore, for at least the same reasons stated above with reference to claim 19 are also nonobvious and patentable. Thus, withdrawal of the instant rejection is requested.

Furthermore, claim 29 calls for “wherein said pressurized water source selectively supplies said pressurized water based on said pressure in said interior cavity.” In contrast to this subject matter, the Harada et al. reference specifically teaches that the dionized water is added by feedpump 9 and control valve 10 to maintain the water at an approxiamately constant level. See column 13, lines 54-65, of the Harada et al. reference. The Harada et al. reference appears to be completely silent about utilizing the water to pressurize the interior of pressure vessel 7. Rather, the Harada et al. reference seems to specifically disclose and teach that the pressurization within the pressure vessel is provided by the formation of the oxygen therein during the electrolysis process. Thus, it is respectfully submitted that the Harada et al. reference does not provide any teaching, suggestion, or motivation to selectively supply pressurized water based on the pressure in the interior cavity as called for in claim 29. It is also respectfully submitted that the Sioli reference does not make up for the shortcoming of Harada et al. and, thus, there is no motivation provided in the prior art of record to arrive at the subject matter of claim 29.

Moreover, in rejecting this claim, the Examiner seems to feel that it would be obvious to selectively supply more pressurized water to the pressure vessel if the pressure within the vessel dropped below a minimum acceptable gas pressure to

thereby increase the operating pressure. However, as stated above, Applicant cannot find any reference in the prior art of record to where such a teaching, suggestion, or motivation to one skilled in the art is present. Thus, if the Examiner wishes to maintain this rejection, the Examiner is respectfully requested to provide a prior art reference providing such motivation, teaching, or suggestion. Absent such a showing, withdrawal of the rejection of claim 29 is requested.

Claim 45 is nonobvious and patentable over the Harada et al. reference in view of the Sioli reference because these references do not teach, suggest, or provide motivation to have pumps generating a continuous flow of pressurized water through the anode side of the electrolyzer and a selective flow of pressurized water through the cathode side of the electrolyzer. Amended claim 45 calls for:

a pump operable to circulate pressurized water in said interior cavity through said cathode and anode sides of said electrolyzer, operation of said pump generating a continuous flow of pressurized water through said anode side of said electrolyzer and a selective flow of pressurized water through said cathode side of said electrolyzer.

In contrast to this subject matter, the Harada et al. reference discloses the use of a pump 16 to supply a flow of water from the interior of pressure vessel 17 to the anode compartment of the electrolyzer cell 1 through communication port 2. See at least column 9, lines 55-65, of the Harada et al. reference. The Harada et al. reference does not appear to teach, suggest, or disclose the supplying of pressurized water from the pump to the cathode compartment, as called for in claim 45, much less the supplying of a selective flow. Rather, the Harada et al. reference appears to disclose that all of the pressurized water is supplied to the anode compartment and is then carried from the anode compartment to the cathode compartment along with the migration of H<sup>+</sup> ions.

See at least column 14, lines 21-24, of the Harada et al. reference. Thus, it is respectfully submitted that the Harada et al. reference does not teach, suggest, or provide motivation to have a pump generate a continuous flow of pressurized water through the anode side of the electrolyzer and a selective flow of pressurized water through the cathode side of the electrolyzer, as called for in claim 45. Furthermore, the Sioli reference does not provide any teaching, suggestion, or disclosure to have such a pump, much less such a pump operating in the manner called for in claim 45. Thus, for at least this reason, it is respectfully submitted that claim 45 is nonobvious and patentable over the prior art of record. Accordingly, allowance of claim 45 and withdrawal of the instant rejection is requested.

#### **NEW CLAIMS**

New claims 46-56 are added herein. New claims 46-56 all depend from one of claims 19 and 45 and, therefore, for at least the same reasons stated above with reference to claims 19 and 45 are patentable over the prior art of record. Thus, allowance of the new claims is requested.

Moreover, new claims 46-56 further call for specific features or functionality related to the supplying of the pressurized water to the anode and cathode sides of the electrolyzer. It is respectfully submitted that this subject matter is not taught, disclosed, or suggested in the prior art of record. Thus, for at least these reasons it is respectfully submitted that claim 46-56 further define subject matter that is nonobvious and patentable over the prior art of record and allowance of these claims is requested.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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